

# Employee Preparedness, Acceptability, and Operational Efficiency in the Adoption of Automation and Artificial Intelligence in Fast Food Operations in City of Biñan, Laguna

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## ABSTRACT

This study examined the relationship between employees' preparedness, acceptability, and operational efficiency in adopting artificial intelligence (AI) in selected fast-food operations in City of Biñan, Laguna. Grounded in the Diffusion of Innovation Theory, TOE Framework, and RBV, the study used a descriptive-correlational design with data from 186 employees. Results showed very high levels of preparedness (3.33), acceptability (3.30), and operational efficiency (3.28), indicating strong readiness, positive perceptions, and effective performance in AI-supported tasks. Significant moderate correlations revealed that higher preparedness and acceptability are associated with improved operational efficiency. The study concludes that enhancing employee readiness and fostering positive attitudes toward AI significantly improve service speed, accuracy, and resource management. It recommends targeted training programs, hands-on simulations, and continuous monitoring and feedback to strengthen workforce competence and ensure effective AI implementation in fast-food operations.

**Keywords:** Employee Preparedness, AI Adoption, Automation, Operational Efficiency, Acceptability, Fast-food Operations

## INTRODUCTION

Artificial Intelligence (AI) and automation have emerged as transformative technologies across various industries, reshaping how businesses operate and deliver services. Globally, organizations are increasingly integrating AI-driven systems to enhance productivity, streamline processes, and meet rising demands for efficiency and quality (Pymnts, 2025). Technological innovations such as machine learning, robotics, self-service kiosks, and smart ordering platforms are reshaping service delivery paradigms, particularly in sectors where speed and accuracy are critical. Among these sectors, the fast-food industry stands out due to its high transaction volumes, operational complexity, and direct interaction with diverse consumer segments.

The fast-food industry relies on rapid service, consistent quality, and customer satisfaction. AI and automation such as automated cooking machines, predictive inventory analytics, self-service kiosks, and AI-powered support offer benefits like reduced errors, lower costs, and faster service (Ailoitte, 2025). Chains like McDonald's, Domino's, and Jollibee are adopting AI for order taking, food preparation, and delivery optimization (Intelligent Core, 2025). However, successful integration depends not only on

technology but also on human and organizational factors (Philippine Institute for Development Studies, 2025).

Effective AI and automation adoption in fast-food operations requires employees who are prepared, capable, and willing to work with these systems, as employee preparedness encompasses the skills, competencies, and mindset needed to interact with and manage AI-enabled tools. Research on employee adoption of AI technologies indicates that performance expectancy, effort expectancy, social influence, and facilitating conditions significantly shape workers' intention to use service robots in hospitality and foodservice settings (ScienceDirect, 2022), while studies on technology readiness in other sectors further reinforce that employee belief in their ability to use AI tools strongly predicts adoption outcomes, suggesting that workforce training and development are essential components of AI integration strategies (SpringerLink, 2024). In addition, acceptability, or the degree to which employees and customers embrace new technologies, is a critical factor, as research in adjacent service sectors shows that consumers' acceptance of self-service technologies in fast-food environments centers on ease of use, perceived usefulness, and social influences (Jumbri et al., 2023; Elmedolan et al., 2024). Finally, operational efficiency refers to measurable improvements in performance outcomes such as service speed, error rates, cost per transaction, and throughput resulting from AI and automation adoption; for instance, AI-enabled systems can reduce transaction times, optimize workforce scheduling, and decrease operational costs, all of which improve service performance, although outcomes may vary depending on integration with existing operations and human dynamics (WiFi Talents, 2025; ScienceDirect, 2022).

In the Philippine context, fast-food chains are deeply embedded in daily consumer routines across demographic groups. These establishments contribute significantly to local economies, provide widespread employment, and serve as accessible service points for consumers. The effective adoption of AI and automation in this sector could both enhance service quality and strengthen competitive positioning. However, given the current slow uptake of advanced AI technologies among Philippine businesses overall, and persistent skills gaps in the workforce as identified in national studies, there is a compelling need for targeted research that explores employee preparedness, acceptability, and operational outcomes within the fast-food industry.

Thus, this study aims to determine the level of employee preparedness, acceptability, and operational efficiency in relation to the adoption of automation and artificial intelligence in fast-food operations within City of Biñan, Laguna. It also seeks to examine the relationships among these variables.

## **METHODS**

The researcher discusses the methodology in detail, focusing on the research design, participant selection, data collection process, and analysis. The study utilized a descriptive-correlational research design, which describes the current conditions of a phenomenon and examines the relationships among variables. Specifically, the researcher aimed to investigate the level of employee preparedness, acceptability, and operational efficiency in relation to the adoption of automation and artificial intelligence (AI) in selected fast-food operations in the City of Biñan, Laguna. This design allowed the researcher to determine existing conditions and explore how these variables are related without manipulating any factors.

The study focused on employees from selected fast-food chains where AI and automation have been implemented, as they are directly involved in daily operations and are likely to interact with these technologies. The total population consisted of 357 employees, and 186 respondents were selected using stratified sampling with proportional allocation to ensure fair representation across six fast-food

establishments. Only employees with at least six months of experience were included to ensure familiarity with operational processes and exposure to AI systems. This sampling method enhanced the representativeness and reliability of the findings.

The researcher utilized a self-administered questionnaire as the primary data collection tool, which was divided into three parts: Part 1 assessed employee preparedness, Part 2 measured acceptability, and Part 3 evaluated operational efficiency. The instrument was carefully designed to capture relevant data regarding employees’ readiness, perceptions, and performance in AI-supported environments.

To ensure the validity and reliability of the instrument, it underwent expert validation by specialists in research, statistics, and business management. A pilot test was also conducted among 15 employees who were not part of the actual respondents to refine the questionnaire. Reliability testing using Cronbach’s Alpha yielded high values (0.946 for preparedness, 0.961 for acceptability, and 0.951 for operational efficiency), indicating strong internal consistency and reliability of the instrument.

In terms of data gathering, the researcher followed a systematic procedure by first securing approval from the management of selected fast-food establishments. Upon approval, the questionnaires were distributed personally to respondents, ensuring proper guidance and voluntary participation. Collected data were then encoded in Excel and forwarded to a statistician for analysis, maintaining confidentiality and data accuracy.

For data analysis, the study employed weighted mean to determine the levels of employee preparedness, acceptability, and operational efficiency. Additionally, Pearson’s r correlation was used to examine the relationships among these variables. This statistical method enabled the researcher to identify the strength and direction of the relationships, providing insights into how employee readiness and acceptance of AI influence operational efficiency in fast-food operations.

**RESULTS AND DISCUSSIONS**

The following tables and textual presentations present a discussion on employee preparedness, acceptability, and operational efficiency in relation to the adoption of automation and artificial intelligence (AI) in selected fast-food operations in the City of Biñan, Laguna.

**Table 1**

**Composite Table for the Level of Employees’ Preparedness in the Adoption of Automation and Artificial Intelligence in Fast-food Operations**

<b>Indicators</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>	<b>Rank</b>
1. Skill proficiency	3.45	Very High	2
2. Training program and knowledge assessment	3.10	High	4
3. Attitude and Acceptance	3.48	Very High	1
4. Performance	3.27	Very High	3
<b>Overall Weighted Mean</b>	<b>3.33</b>	<b>Very High</b>	

The data presented in Table 1 reveals that employees in selected fast-food operations in the City of Biñan, Laguna “strongly agreed” on their level of preparedness in the adoption of automation and artificial intelligence (AI), with an overall weighted mean of 3.33, interpreted as “Very High.” This indicates that employees demonstrate strong readiness in terms of skills, attitudes, training, and performance when

engaging with AI technologies. The highest-rated indicator was Attitude and Acceptance (3.48), showing that employees have a positive outlook and willingness to adapt to AI-driven systems. This was followed by Skill Proficiency (3.45), indicating that employees possess the necessary competencies to operate AI tools effectively. Performance (3.27) also yielded a high rating, suggesting that employees can apply their knowledge in actual work settings while maintaining operational standards. Meanwhile, Training Program and Knowledge Assessment (3.10), although still rated high, ranked lowest among the indicators, implying the need for continuous enhancement of training initiatives to further strengthen employee preparedness. The findings of the study are consistent with previous research, such as Lee, Park, and Kim (2023) and Quimba (2024), which emphasize that employee preparedness comprising skills, attitudes, training, and performance is a key factor in the successful adoption of AI in service-oriented industries. These results suggest that employees in fast-food operations are well-equipped and receptive to automation and AI technologies, which can contribute to improved efficiency, service quality, and overall organizational performance.

**Table 2****Composite Table for the Level of Employees' Acceptability of the Adoption of Automation and Artificial Intelligence in Fast-food Operations**

<b>Indicators</b>	<b>Weighted Mean</b>	<b>Verbal Interpretation</b>	<b>Rank</b>
1. System reliability	3.27	Very High	3
2. Customer experience	3.28	Very High	2
3. Employee work process	3.35	Very High	1
<b>Overall Weighted Mean</b>	<b>3.30</b>	<b>Very High</b>	

The data presented in Table 2 reveals that employees in selected fast-food operations in the City of Biñan, Laguna “strongly agreed” on their level of acceptability toward the adoption of automation and artificial intelligence (AI), with an overall weighted mean of 3.30, interpreted as “Very High.” This indicates that employees demonstrate strong acceptance of AI technologies, recognizing their reliability, contribution to customer experience, and ability to enhance work processes. The highest-rated indicator was Employee Work Process (3.35), showing that employees are highly adaptable and confident in integrating AI into their daily tasks to improve efficiency and productivity. This was followed by Customer Experience (3.28), suggesting that employees acknowledge the positive impact of AI on service quality, order accuracy, and customer satisfaction. System Reliability (3.27) ranked third, indicating that employees generally trust AI systems to perform consistently, although minor concerns may still be present.

The findings of the study align with previous research, such as Park (2025) and Kumawat (2025), which highlight system reliability as a key factor in building employee trust and acceptance of AI technologies. Similarly, Rana (2025) and Chotisarn et al. (2025) emphasized that AI enhances customer experience through improved speed, accuracy, and personalization of services. Brynjolfsson et al. (2023) further noted that AI positively transforms employee work processes by reducing repetitive tasks and increasing productivity. These results suggest that employees not only accept AI as a reliable tool but also recognize its value in improving operational performance and overall customer satisfaction in fast-food operations.

**Table 3**

**Composite Table for the Level of Operational Efficiency in the adoption of automation and Artificial Intelligence in Fast-food Operations as assessed by the Respondents**

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Speed of service	3.26	Very High	3
2. Accuracy and quality of operations	3.29	Very High	2
3. Cost and resource efficiency	3.30	Very High	1
<b>Overall Weighted Mean</b>	<b>3.28</b>	<b>Very High</b>	

The data presented in Table 3 reveals that employees in selected fast-food operations in the City of Biñan, Laguna “strongly agreed” on the level of operational efficiency in the adoption of automation and artificial intelligence (AI), with an overall weighted mean of 3.28, interpreted as “Very High.” This indicates that employees perceive AI technologies as highly effective in improving service speed, operational accuracy and quality, as well as cost and resource management. The highest-rated indicator was Cost and Resource Efficiency (3.30), showing that AI helps optimize scheduling, reduce labor costs, and minimize waste. This was followed by Accuracy and Quality of Operations (3.29), suggesting that AI contributes to reducing errors and maintaining consistency in service delivery. Speed of Service (3.26) ranked third, indicating that AI supports faster order processing and smoother service flow, although some adjustments may still be necessary in certain tasks.

The findings of the study are consistent with previous research, such as Huang and Rust (2021), Ivanov and Webster (2022), and Lee, Park, and Kim (2023), which emphasize that AI and automation significantly enhance operational efficiency in service industries by improving speed, accuracy, and cost-effectiveness. These results suggest that fast-food operations can achieve better performance and productivity when employees effectively utilize AI systems, ultimately leading to improved service quality and optimized resource management.

**Table 4**

**Relationship between the Level of Employees’ Preparedness and Level of Acceptability in the Adoption of Automation and Artificial Intelligence in Fast-food Operations**

Level of Employees’ Preparedness	Level of Acceptability on Automation and Artificial Intelligence Adoption		
	System Reliability	Customer Experience	Employee Work Process
Skill Proficiency	r=0.456** Moderate correlation p=0.000 Significant	r=0.487** Moderate correlation p=0.000 Significant	r=0.456** Moderate correlation p=0.000 Significant
Training Program and Knowledge Assessment	r=0.463** Moderate correlation p=0.000 Significant	r=0.343** Low Correlation p=0.000 Significant	r=0.269** Low Correlation p=0.001 Significant
Attitude and Acceptance	r=0.499** Moderate correlation	r=0.585** Moderate correlation	r=0.653** Moderate correlation

	p=0.000 Significant	p=0.000 Significant	p=0.000 Significant
Performance	r=0.467** Moderate correlation p=0.000 Significant	r=0.531** Moderate correlation p=0.000 Significant	r=0.483** Moderate correlation p=0.000 Significant
**Significant @ 0.01			

Table 4 shows that the relationship between employees’ preparedness and acceptability of automation and artificial intelligence (AI) adoption in fast-food operations in the City of Biñan, Laguna reveals significant positive correlations across all indicators. Skill Proficiency showed moderate correlations with System Reliability ( $r = 0.456$ ), Customer Experience ( $r = 0.487$ ), and Employee Work Process ( $r = 0.456$ ), all with p-values of 0.000, indicating statistical significance at the 0.01 level. Training Program and Knowledge Assessment also showed a moderate correlation with System Reliability ( $r = 0.463$ ) and low correlations with Customer Experience ( $r = 0.343$ ) and Employee Work Process ( $r = 0.269$ ), all significant. Attitude and Acceptance demonstrated moderate correlations with System Reliability ( $r = 0.499$ ), Customer Experience ( $r = 0.585$ ), and Employee Work Process ( $r = 0.653$ ), while Performance likewise showed moderate correlations with System Reliability ( $r = 0.467$ ), Customer Experience ( $r = 0.531$ ), and Employee Work Process ( $r = 0.483$ ), all with p-values of 0.000. These results indicate that higher levels of employee preparedness particularly in terms of skills, attitudes, and performance are associated with greater acceptance of AI technologies, including trust in system reliability, improved customer experience, and smoother work processes. Overall, this means that as employees become more prepared, they are more likely to accept and effectively utilize AI and automation in fast-food operations.

The significant positive relationships between employees’ preparedness and acceptability are consistent with findings from previous studies. Huang and Rust (2021) emphasized that employee competence and readiness are essential for building trust and acceptance of AI systems. Similarly, Ivanov and Webster (2022) highlighted that training and skill development enhance employees’ ability to adapt to AI-driven environments, while Lee, Park, and Kim (2023) found that positive attitudes and strong performance contribute to successful AI integration. These studies support the present findings that well-prepared employees are more confident, adaptable, and receptive to AI technologies, ultimately leading to improved operational effectiveness and service quality in fast-food operations.

**Table 5**

**Relationship between the Level of Employees’ Preparedness and Level of Operational Efficiency in the Adoption of Automation and Artificial Intelligence in Fast-Food Operations**

Level of Employees’ Preparedness	Level of Operational Efficiency on Automation and Artificial Intelligence Adoption		
	Speed of Service	Accuracy and Quality of Operations	Cost and Resource Efficiency
Skill Proficiency	r=0.408** Moderate correlation p=0.000 Significant	r=0.472** Moderate correlation p=0.000 Significant	r=0.492** Moderate correlation p=0.000 Significant

Training Program and Knowledge Assessment	r=0.456** Moderate correlation p=0.000 Significant	r=0.436** Moderate correlation p=0.000 Significant	r=0.405** Moderate correlation p=0.000 Significant
Attitude and Acceptance	r=0.393** Low correlation p=0.000 Significant	r=0.592** Moderate correlation p=0.000 Significant	r=0.514** Moderate correlation p=0.000 Significant
Performance	r=0.542** Moderate correlation p=0.000 Significant	r=0.511** Moderate correlation p=0.000 Significant	r=0.501** Moderate correlation p=0.000 Significant
**Significant @ 0.01			

Table 5 shows that the relationship between employees’ preparedness and operational efficiency in the adoption of automation and artificial intelligence (AI) in fast-food operations in the City of Biñan, Laguna reveals significant positive correlations across all indicators. Skill Proficiency showed moderate correlations with Speed of Service ( $r = 0.408$ ), Accuracy and Quality of Operations ( $r = 0.472$ ), and Cost and Resource Efficiency ( $r = 0.492$ ), all with p-values of 0.000, indicating significance at the 0.01 level. Training Program and Knowledge Assessment also demonstrated moderate correlations with Speed of Service ( $r = 0.456$ ), Accuracy and Quality of Operations ( $r = 0.436$ ), and Cost and Resource Efficiency ( $r = 0.405$ ), all statistically significant. Attitude and Acceptance showed a low correlation with Speed of Service ( $r = 0.393$ ) but moderate correlations with Accuracy and Quality of Operations ( $r = 0.592$ ) and Cost and Resource Efficiency ( $r = 0.514$ ), while Performance exhibited moderate correlations with Speed of Service ( $r = 0.542$ ), Accuracy and Quality of Operations ( $r = 0.511$ ), and Cost and Resource Efficiency ( $r = 0.501$ ), all significant at the 0.01 level. These results indicate that higher levels of employee preparedness particularly skills, training, positive attitude, and performance are associated with improved operational efficiency in terms of faster service delivery, better accuracy and quality, and more effective cost and resource management.

The findings of the study are consistent with existing literature. Huang and Rust (2021) emphasized that employee readiness and skill development are essential in maximizing the benefits of AI in service operations. Ivanov and Webster (2022) further noted that training and continuous learning significantly improve operational outcomes by enhancing employee capability in handling automated systems. Similarly, Borbon (2025) highlighted that well-prepared employees contribute to improved workflow efficiency, reduced operational errors, and optimized resource utilization in fast-food settings. These studies support the present findings that employees who are more prepared and competent in using AI technologies are more likely to enhance operational efficiency in fast-food operations.

**Table 6**

**Relationship between the Level of Employees’ Acceptability and Level of Operational Efficiency in the Adoption of Automation and Artificial Intelligence Adoption in Fast-Food Operations**

Level of Acceptability	Level of Operational Efficiency on Automation and Artificial Intelligence Adoption		
	Speed of Service	Accuracy and Quality of Operations	Cost and Resource Efficiency
System Reliability	r=0.548** Moderate correlation p=0.000 Significant	r=0.622** Moderate correlation p=0.000 Significant	r=0.471** Moderate correlation p=0.000 Significant
Customer Experience	r=0.511** Moderate correlation p=0.000 Significant	r=0.625** Moderate correlation p=0.000 Significant	r=0.629** Moderate correlation p=0.000 Significant
Employee Work Process	r=0.476** Moderate correlation p=0.000 Significant	r=0.712** Moderate correlation p=0.000 Significant	r=0.576** Moderate correlation p=0.000 Significant
**Significant @ 0.01			

Table 6 shows that the relationship between employees’ acceptability and operational efficiency in the adoption of automation and artificial intelligence (AI) in fast-food operations in the City of Biñan, Laguna reveals significant positive correlations across all indicators. System Reliability showed moderate correlations with Speed of Service ( $r = 0.548$ ), Accuracy and Quality of Operations ( $r = 0.622$ ), and Cost and Resource Efficiency ( $r = 0.471$ ), all significant at the 0.01 level. Customer Experience also demonstrated moderate correlations with Speed of Service ( $r = 0.511$ ), Accuracy and Quality of Operations ( $r = 0.625$ ), and Cost and Resource Efficiency ( $r = 0.629$ ), while Employee Work Process showed moderate to strong correlations with Speed of Service ( $r = 0.476$ ), Accuracy and Quality of Operations ( $r = 0.712$ ), and Cost and Resource Efficiency ( $r = 0.576$ ), all statistically significant. These results indicate that higher levels of acceptability reflected in employees’ trust in system reliability, positive perception of customer experience, and adaptability in work processes—are associated with improved operational efficiency in terms of faster service delivery, higher accuracy and quality, and better cost and resource management.

The findings of the study are consistent with existing literature. Huang and Rust (2021) emphasized that employee acceptance of AI systems is crucial in achieving higher operational performance in service industries. Ivanov and Webster (2022) further highlighted that trust and positive perception of AI technologies enhance workflow efficiency and service quality. Similarly, Brynjolfsson et al. (2023) noted that employees who are more adaptable and open to AI integration contribute to improved productivity,

accuracy, and customer satisfaction. These studies support the present findings that greater acceptability of AI and automation leads to more efficient operations in fast-food settings.

## CONCLUSION AND RECOMMENDATION

The findings of the study revealed that employees in fast-food operations in the City of Biñan, Laguna demonstrated a very high level of preparedness in the adoption of automation and artificial intelligence (AI), with an overall weighted mean of 3.33. This includes high ratings in skill proficiency, training program and knowledge assessment, attitude and acceptance, and performance. Likewise, the level of acceptability was also very high, with a weighted mean of 3.30, indicating strong trust in system reliability, positive perception of customer experience, and adaptability in employee work processes. In terms of operational efficiency, the respondents also obtained a very high overall weighted mean of 3.28, reflecting improvements in speed of service, accuracy and quality of operations, and cost and resource efficiency. Furthermore, the study found significant relationships between employees' preparedness and acceptability ( $r = 0.269$  to  $0.653$ ,  $p < 0.01$ ), preparedness and operational efficiency ( $r = 0.393$  to  $0.542$ ,  $p < 0.01$ ), and acceptability and operational efficiency ( $r = 0.471$  to  $0.712$ ,  $p < 0.01$ ), all indicating low to moderate-to-moderate positive correlations. These results imply that higher employee preparedness and greater acceptability of AI and automation are associated with improved operational efficiency in fast-food operations. Based on these findings, the proposed action plan includes strengthening employee training programs, enhancing AI-related skill development, conducting regular performance monitoring, improving feedback mechanisms, and reinforcing change management initiatives to support effective AI integration.

The study concluded that employees in fast-food operations are generally well-prepared, highly accepting, and capable of efficiently utilizing automation and artificial intelligence technologies. Their preparedness in terms of skills, training, attitude, and performance contributes significantly to their acceptance of AI systems, which in turn enhances operational efficiency in terms of service speed, accuracy, and cost-effectiveness. Moreover, employees who are more accepting of AI technologies tend to demonstrate better performance outcomes, smoother workflow adaptation, and improved customer service delivery. Overall, the integration of AI and automation in fast-food operations in the City of Biñan, Laguna is effective when supported by a competent, well-trained, and positive workforce, leading to improved operational performance and service quality.

The study recommends that fast-food employees continuously participate in AI-focused training and skill enhancement programs to further strengthen their preparedness and adaptability to technological advancements. Fast-food managers and business owners are encouraged to implement structured training programs, performance monitoring systems, and continuous feedback mechanisms to ensure effective integration of AI and automation in daily operations. They may also strengthen employee engagement by promoting positive attitudes toward AI adoption and supporting change management initiatives that facilitate smoother work transitions. Additionally, management may ensure proper system maintenance and provide adequate technical support to enhance trust and reliability in AI systems. Policy makers and industry stakeholders may develop guidelines that promote balanced AI integration while supporting employee development and job security. Finally, future researchers are encouraged to explore similar studies using mixed-method approaches to gain deeper insights into employee experiences, challenges, and strategies in AI adoption within the service industry.

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